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Symposium H Materials Issues for Tunable RF and Microwave Devices III was held at the 2002 Spring Meeting of the Materials Research Society in San Francisco, CA during April 2-5, 2002.

The purpose of the symposium was to bring together researchers from a broad range of disciplines to discuss the challenges facing the implementation of an affordable tunable RF and microwave device technology. Low cost, tunable microwave devices will have a tremendous impact on a variety of commercial and military systems, including, but not limited to, tunable band-select filters for wireless communications, phase shifters and true time delay devices for electronic scanning antennas, tunable radiating structures for frequency hopping, and tunable transformers to reduce RF impedance mismatch.

The papers of this symposium discuss a wide range of topics from materials issues through devices and even a system level demonstration of electronic beam steering. Specific materials issues discussed are: new tunable materials; issues of tunability, preparation and optimization of bulk and thin film properties; materials, surface, and interface characterization; evaluation of material loss and loss mechanisms; effects of microstructure; and temperature stability. At the device level, phase shifters are discussed and a new device concept for variable true time delay versus phase shift is introduced. At the system level, a paraelectric lens is used to demonstrate electronic beam steering of an antenna at 10 GHz with about 2dB of loss.

Attachment: Symposium H Abstracts

<b>REPORT OF INVENTIONS AND SUBCONTRACTS</b> (Pursuant to "Patent Rights" Contract Clause) (See Instructions on back)		Form Approved OMB No. 9000-0095 Expires Oct 31, 2004	
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b. ADDRESS (Include ZIP Code) 506 Keystone Dr Warrendale PA 15086		c. CONTRACT NUMBER N00014-02-1-0540	
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e. FROM 5/1/02		f. TO 9/30/03	
3. TYPE OF REPORT (X one) a. INTERIM b. FINAL		4. REPORTING PERIOD (YYYYMMDD) a. FROM 5/1/02 b. TO 9/30/03	
5. "SUBJECT INVENTIONS" REQUIRED TO BE REPORTED BY CONTRACTOR/SUBCONTRACTOR (If "None," so state)			
SECTION I - SUBJECT INVENTIONS			
NAME(S) OF INVENTOR(S) (Last, First, Middle Initial)		ELECTION TO FILE PATENT APPLICATIONS (X) d. (1) UNITED STATES (2) FOREIGN (a) YES (b) NO (a) YES (b) NO (a) YES (b) NO	
b. TITLE OF INVENTION(S)		DISCLOSURE NUMBER, PATENT APPLICATION SERIAL NUMBER OR PATENT NUMBER c.	
N/A			
f. EMPLOYER OF INVENTOR(S) NOT EMPLOYED BY CONTRACTOR/SUBCONTRACTOR		g. ELECTED FOREIGN COUNTRIES IN WHICH A PATENT APPLICATION WILL BE FILED	
(1) (a) NAME OF INVENTOR (Last, First, Middle Initial) N/A		(1) TITLE OF INVENTION	
(b) NAME OF EMPLOYER		(2) FOREIGN COUNTRIES OF PATENT APPLICATION	
(c) ADDRESS OF EMPLOYER (Include ZIP Code)			
SECTION II - SUBCONTRACTS (Containing a "Patent Rights" clause)			
6. SUBCONTRACTS AWARDED BY CONTRACTOR/SUBCONTRACTOR (If "None," so state)			
NAME OF SUBCONTRACTOR(S) a.		SUBCONTRACT NUMBER(S) c.	
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b. ADDRESS (Include ZIP Code)		FAR "PATENT RIGHTS" d. (1) CLAUSE NUMBER (2) DATE (YYYYMM)	
b. TITLE		DESCRIPTION OF WORK TO BE PERFORMED UNDER SUBCONTRACT(S) e.	
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SECTION III - CERTIFICATION			
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I certify that the reporting party has procedures for prompt identification and timely disclosure of "Subject Inventions," that such procedures have been followed and that all "Subject Inventions" have been reported.			
a. NAME OF AUTHORIZED CONTRACTOR/SUBCONTRACTOR OFFICIAL (Last, First, Middle Initial) Robert H. Pachavis		c. SIGNATURE Robert H. Pachavis	
b. TITLE Director of Finance		d. DATE SIGNED 8-20-02	